Claims

1. A fuel injector for injecting fuel into a combustion chamber (30) of an internal combustion engine, having an injector body (2) and a nozzle holder (3), in which nozzle holder an injection valve member (5) is movably received, which injection valve member has a seat (28) that opens or closes injection openings (29), and the injection valve member (5) is actuatable via a piezoelectric actuator (9), characterized in that the piezoelectric actuator (9) directly actuates a first booster piston (11), in which a second booster piston (19), connected to the injection valve member (5), is guided for varying the pressure inside a control chamber (18).

2. The fuel injector as recited in claim 1, characterized in that the piezoelectric actuator (9) is received inside a pressure chamber (7), embodied in the injector body (2), which chamber is acted upon via a high-pressure inlet (6) by fuel (8) at system pressure.

3. The fuel injector as recited in claim 2, characterized in that the control chamber (18) is defined by a control chamber sleeve (21), an annular face (20) of the first booster piston (11), an annular face (39) of the second booster piston (19), and a plane face (23) of the nozzle holder (3).

4. The fuel injector as recited in claim 3, characterized in that the control chamber sleeve (21) is guided on the first booster piston (11) and is acted upon via a compression spring (16).

5. The fuel injector as recited in claim 3, characterized in that the control chamber (18) is sealed off from the pressure chamber (7) via a bite edge (22) that cooperates with the plane face (23) of the nozzle holder (3).

6. The fuel injector as recited in claim 1, characterized in that between the first booster piston (11) and the second booster piston (19), a hydraulic chamber (41) is embodied, which communicates hydraulically, via a compensation bore (13), with the pressure chamber (7) inside the injector body (2).

7. The fuel injector as recited in claim 6, characterized in that a spring element (17) resting a contact face (37) is received inside the hydraulic chamber (41) and urges the injection valve member (5) in the closing direction.

8. The fuel injector as recited in claim 1, characterized in that a nozzle chamber inlet (24) branches off from the pressure chamber (7) and connects the pressure chamber (7) with the nozzle chamber (25).

9. The fuel injector as recited in claim 1, characterized in that the guidance of the injection valve member (5) inside the nozzle holder (3) is effected in a guide portion (31) and inside the injector body (2) by the booster pistons (11, 19).

10. The fuel injector as recited in claim 1, characterized in that the hydraulic chamber (41), which communicates with the pressure chamber (7) via a compensation bore (13), has a contact face (37) for the spring element (17), which face is braced in a recess (32)

of the second booster piston (19), which piston has a first annular face (38) that defines the hydraulic chamber (41).